

**JP03281220**  
**ORIENTED MATERIAL**  
**KURARAY CO LTD**

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**Abstract:**

**PURPOSE:** To enhance transparency, moisture absorptive dimensional stability and mechanical strength by regulating orientation release stress (ORS) in the biaxial both directions to a specified range in the biaxially oriented material made of specified methacryl-based copolymer resin.

**CONSTITUTION:** In a film or a sheetlike biaxially oriented material made of methacryl-based copolymer resin which is constituted of 95 - 40 wt.% methyl methacrylate unit and 5 - 60 wt.% cyclohexyl methacrylate and has  $\leq 12$  g/10 min melt flow index, ORS in the biaxial both directions is regulated to a range within 3 - 30 kg/cm<sup>2</sup>. When the amount of methyl methacrylate unit exceeds 95%, improvement of moisture absorption is made insufficient. When the same is less than 40%, transparency and weather resistance are deteriorated. When the amount of cyclohexyl methacrylate unit is less than 5%, improvement of water absorption is made insufficient. When the said amount exceeds 60%, mechanical strength and weather resistance are deteriorated. When the melt flow index is made excessively large, entanglement between molecules is weakened and the brittleness improving effect due to orientation is deteriorated. When ORS is less than 3 kg/cm<sup>2</sup>, the orientated material is easily broken during handling. When ORS exceeds 30 kg/cm<sup>2</sup>, tear strength is weakened.

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